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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,637	03/11/2004	David Craig Smith	14374.91	6675
22913	7590	06/23/2005		
WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY) 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			EXAMINER SUCHECKI, KRYSZYNA	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,637

Applicant(s)

SMITH ET AL.

Examiner

Krystyna Suchecki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 16-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 22-29 is/are rejected.
- 7) ☐ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-15 and 22-29, drawn to an encapsulated stator and x-ray tube, classified in class 378, subclass 131.
 - II. Claims 16-21, drawn to a method of encapsulating a stator, classified in class 310, subclass 43.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the encapsulated stator may be made by other methods, such as by stuffing a resilient material around the stator.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Eric Maschoff on 06/10/05 a provisional election was made without traverse to prosecute the invention of group I, claims 1-15 and 22-29.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 16-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the x-ray absorptive plating of claim 29, and the stator covered over the “entirety” of claim 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

7. Claims 4 and 29 are objected to because of the following informalities: Claim 4 recites that the stator is covered over the "entirety," yet the figures do not show complete encapsulation such that the covering is over all of the stator. The inner-most surfaces of the core are not encapsulated. For examination purposes, the claim will be understood as having completely encapsulated the windings of the stator. Claim 29 is objected to for its use of 'plating', which appears to mean 'covering.' The specification lends antecedence for a covering with a material suspended in it to plate the stator. This is not the usual meaning of 'plating.' Usually, 'plating' means a metallic coating, but no distinction has been given in the specification or drawings. Appropriate correction is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-15 and 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takenaka (US 6,487,273) in view of Jones (US 5,079,466).

10. Regarding Claims 1, 3, 4, 6, 7, 9, 10 and 22, 24 Takenaka teaches an x-ray tube, comprising: an outer housing (152); an evacuated enclosure (Column 7, lines 29-46) contained in the outer housing, the evacuated enclosure containing an electron source (20) and a rotary anode

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(18) having a target surface (22) that is positioned to receive electrons produced by the electron source, the rotary anode being supported by a rotor assembly (26); and an encapsulated stator (28) assembly, comprising: a stator having a core and a plurality of windings attached to the core (Shown at 128 and 28); and a resilient covering portion (106) that envelops (entirely) the stator, wherein the resilient covering portion defines an outer surface that engages an inner surface of the outer housing (Column 13, line 24- Column 14, line 26). Heat is transferred from the stator to the outer housing by way of the encapsulant on the stator (Column 14, lines 8-16 and 33-44).

11. Takenaka fails to teach that the resilient covering portion defines an outer surface that compressively engages an inner surface of the outer housing to secure the stator in a fixed position about the rotor assembly.

12. Jones teaches that stator assemblies can be damped by compressing a resilient material (58) between a housing (50) and the stator (34). An elastomeric bonding material may be held in compression to minimize torque pulsation and noise and to isolate certain vibrations from a base structure (Column 4, lines 51-66).

13. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to compress the resilient material of Takenaka as taught by Jones in order to reduce torque pulsation and noise and to isolate certain vibrations from a base structure (Jones, Column 4, lines 51-66). The resilient covering portion would then define an outer surface that compressively engages an inner surface of the outer housing to secure the stator in a fixed position about the rotor assembly. The compressive engagement between the outer surface of the encapsulated stator assembly and the outer housing would continue to allow heat transfer from the stator to the outer housing and would be sufficient contact pressure to facilitate the transfer.

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The compression of Jones, combined with the vibration preventive nature of the resilient material of Takenaka, would fix the windings such that the windings would be unable to vibrate during operation of the x-ray tube.

14. Regarding Claims 2 and 23, Takenaka teaches an x-ray tube, wherein the encapsulated stator assembly (Column 9, line 54- Column 10, line 23; Column 13, line 24- Column 14, line 26) is pre-formed before being placed in the outer housing. The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

15. Regarding Claims 5, 11 and 25, Takenaka teaches an x-ray tube, wherein the covering portion comprises a dielectric (Column 10, lines 16-23) and thermally conductive (Column 13, lines 24-63) material such that the covering material removes heat from the stator during operation of the x-ray tube (Column 14, lines 8-16 and 33-44).

16. Regarding Claims 12, 13 and 26, Takenaka teaches an x-ray tube, wherein the covering portion comprises a silicone adhesive material (Column 13, lines 59-63). The adhesive nature of the material would prevent contaminants from entering the stator.

17. Regarding Claim 14, Takenaka teaches an encapsulated stator assembly including a central cylindrical cavity that receives a portion of the evacuated enclosure (Column 7, lines 29-53).

18. Regarding Claims 27, Takenaka teaches an x-ray tube, wherein the encapsulated stator assembly further includes an x-ray shielding component (Column 14, lines 17-26).

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19. Regarding Claims 8 and 28, Takenaka teaches an x-ray tube, wherein the x-ray shielding component comprises an x-ray absorbing powder (zinc oxide or barium sulfate) that is integrated into the material that forms the covering portion (Column 14, lines 17-26).

20. Regarding Claims 29, Takenaka teaches an x-ray tube, wherein the x-ray shielding component comprises x-ray absorptive plating that is attached to a portion of the encapsulated stator assembly (Column 14, lines 17-26).

Allowable Subject Matter

21. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. The following is a statement of reasons for the indication of allowable subject matter: Claim 15 contains allowable subject matter for at least the reason that the prior art of record fails to teach or fairly suggest an x-ray tube comprising an outer housing and an encapsulated stator assembly where a stator is positioned about a rotor assembly, the stator being substantially enveloped by a covering portion that is configured to secure the stator within the outer housing and wherein the covering portion comprises an outer surface having at least two annular channels defined in the outer surface; and an o-ring positioned in each channel, each o-ring being compressively interposed between the respective channel and an inner surface of the outer housing as claimed. While o-rings for securing stators against vibrations are *per se* known (see Norton, GB 2 293 695 A and Starek, US 4,635,283), o-rings combined with encapsulation are generally for liquid cooling of stators (see Kitagawa, JP407264810A) or for water-tightness (see Yamamoto, JP 358051754A). Since Takenaka desires to eliminate liquid cooling systems, there

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is no motivation in this prior art to include an encapsulated stator system having two o-rings in two grooves in the system of Takenaka. Other encapsulation systems, such as Aino (US 5,982,131) comprise partial compressive encapsulation via "stuffed" rubber, and leave no motivation to groove the rubber.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krystyna Suchecki whose telephone number is (571) 272-2495.

The examiner can normally be reached on M-F, 9-5.

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

25. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Craig E. Church

Craig E. Church
Primary Examiner